

IN THE CLAIMS

Please amend the claims as follows:

1. (Currently Amended) An implantable medical device, comprising:
 - a housing for containing electronic circuitry;
 - an antenna embedded in a dielectric compartment;
 - circuitry within the housing connected to the antenna for transmitting and receiving a modulated radio-frequency carrier at a specified carrier frequency; and,
 - an antenna tuning circuit for matching the impedance of the antenna to the transmitting/receiving circuitry at a specified carrier frequency by loading the antenna with inductance or capacitance and a transformer through which the antenna is connected to the transmitting/receiving circuitry for electrically isolating the transmitting/receiving circuitry from the housing for converting between a single ended signal generated or received by the transmitter/receiver circuitry and a differential signal generated or received by the antenna, wherein the antenna tuning circuit further comprises a variable tuning capacitor for adjusting the resonant frequency of the antenna.
2. (Original) The device of claim 1 wherein the dielectric compartment is within a header for the device having feedthroughs therein for routing connections between internal circuitry and external leads.
3. (Original) The device of claim 1 wherein the dielectric compartment is a dielectric pocket adjacent a surface of the device housing.
4. (Original) The device of claim 1 wherein the dimensions of the antenna are such that a significant portion of radio-frequency energy delivered to the antenna at the specified carrier frequency is emitted as far-field radiation.
5. (Original) The device of claim 1 wherein the antenna is a helically coiled antenna.

6. (Original) The device of claim 5 wherein the helically coiled antenna is oriented roughly parallel to a surface of the device housing and further wherein the electrical length of the antenna is approximately one-half wavelength of the specified radio-frequency carrier.

7. (Original) The device of claim 5 wherein the helically coiled antenna is oriented roughly perpendicular to a surface of the device housing and further wherein the electrical length of the antenna is approximately one-quarter wavelength of the specified radio-frequency carrier so as to act as a monopole antenna with the device housing serving as a ground plane.

8-9. (Cancelled)

10. (Currently Amended) The device of claim 1 wherein the transformer is tuning circuit ~~further comprises~~ a balun transformer for converting between a single-ended signal generated or received by the transmitter/receiver circuitry and a differential signal generated or received by the antenna.

11. (Original) The device of claim 10 wherein a winding of the balun transformer is formed by the helical antenna.

12. (Original) The device of claim 1 wherein the device is a cardiac rhythm management device having rhythm control circuitry electrically connected to one or more electrodes adapted for disposition within or near the heart by one or more therapy leads.

13. (Original) The device of claim 12 wherein the helical antenna is embedded within a header of the device coiled around a bore into which an end of a therapy lead is inserted.

14. (Currently Amended) A method for transmitting and receiving radio-frequency signals in an implantable medical device, comprising:

transmitting or receiving a modulated radio-frequency carrier at a specified carrier frequency to or from a helically coiled antenna;

matching the impedance of the antenna to the transmitting/receiving circuitry at a specified carrier frequency by loading the antenna with inductance or capacitance using an antenna tuning circuit; and,

connecting the antenna to the transmitting/receiving circuitry though a transformer to electrically isolate the transmitting/receiving circuitry from a device housing.

converting between a single-ended signal generated or received by the transmitter/receiver circuitry and a differential signal generated or received by the antenna.

15. (Original) The method of claim 14 further comprising converting between a single-ended signal generated or received by the transmitter/receiver circuitry and a differential signal generated or received by the antenna with a balun transformer.

16. (Original) The method of claim 15 further comprising adjusting the resonant frequency of the antenna to a specified carrier frequency with a variable capacitor.

17. (Cancelled)

18. (Previously Presented) The method of claim 14 wherein the helically coiled antenna is oriented roughly parallel to a surface of the device housing and further comprising transmitting at a carrier frequency with a wavelength approximately twice the electrical length of the antenna.

19. (Previously Presented) The method of claim 14 wherein the helically coiled antenna is oriented roughly perpendicular to a surface of the device housing and further comprising transmitting at a carrier frequency with a wavelength approximately four times the electrical length of the antenna such that the antenna acts as a monopole antenna with the device housing serving as a ground plane.

20. (Currently Amended) The method of claim 14 wherein the transformer is a balun transformer and further comprising converting between a single-ended signal generated or received by the transmitter/receiver circuitry and a differential signal generated or received by

the antenna with [[a]] ~~the~~ balun transformer and wherein one winding of the transformer is formed by the helical antenna.

21. (New) An implantable medical device, comprising:

a housing for containing electronic circuitry;
control circuitry electrically connected to one or more electrodes adapted for disposition in a patient's body by one or more therapy leads
a helical antenna embedded in a dielectric compartment;
circuitry within the housing connected to the antenna for transmitting and receiving a modulated radio-frequency carrier at a specified carrier frequency; and,
wherein the helical antenna is embedded within a header of the device coiled around a bore into which an end of a therapy lead is inserted.

22. (New) The device of claim 21 further comprising an antenna tuning circuit for matching the impedance of the antenna to the transmitting/receiving circuitry at a specified carrier frequency by loading the antenna with inductance or capacitance and a balun transformer through which the antenna is connected to the transmitting/receiving circuitry wherein the antenna tuning circuit further comprises a variable tuning capacitor for adjusting the resonant frequency of the antenna.

23. (New) The device of claim 21 wherein the device is a cardiac rhythm management device having rhythm control circuitry electrically connected to one or more electrodes adapted for disposition within or near the heart by the one or more therapy leads.